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EXAMINER

NAFF, DAVID M

ART UNIT	PAPER NUMBER
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1651

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/929,736

Applicant(s)

SCHUELLER ET AL.

Examiner

David M. Naff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 and 116-125 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 and 116-125 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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The amendment of 10/27/03 amended the specification, canceled claims 71-85, amended claim 1, and added new claims 116-125.

Claims examined on the merits are 1-38 and 116-125, which are all claims in the application.

5 The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

10 The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15 Claims 1-38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in
20 the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

25 The specification fails to support any non-planar stamp as now required by amended claim 1. Applicants refer to the Figures and page 12, line 12 to page 13, line 9, of the specification as providing support of a non-planar stamp. However, while the specification discloses that the stamp can take practically any shape, the specification does not recite the term "non-planar". The stamp being any non-planar stamp is a new concept of the invention not present in the original specification. The stamp shapes depicted by the figures

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and description relating thereto relate to specific non-planar structures. This is not adequate support for the much broader scope of any non-planar stamp as claimed. Applicants may not use described species to extrapolate to substantially different forms.

5 ***Claim Rejections - 35 USC § 112***

Claims 33-36 and 116-125 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for carrying out the process using a tubular stamp containing a lumen having a stamping surface on its inside surface, placing a substrate
10 within the lumen of the tubular stamp and modulating dimensions of the tubular stamp to cause the stamping surface to contact the substrate, and using a tubular substrate containing a lumen by placing a tubular stamp containing an exterior stamping surface within the lumen of tubular substrate and modulating the dimensions of the tubular stamp
15 to cause the exterior stamping surface to contact the interior surface of the substrate lumen, does not reasonably provide enablement for other relationships between a stamp lumen and substrate or a stamp and substrate lumen. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly
20 connected, to make the use the invention commensurate in scope with these claims.

When the stamp and substrate contain a lumen, the specification is enabling for only embodiments as set forth above. It would be uncertain how a lumen can otherwise be used to accomplish patterning a
25 surface. The specification and claims must be commensurate in scope.

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Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C.

112:

5 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

 Claims 1-38 and 116-125 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out
10 and distinctly claim the subject matter which applicant regards as the invention.

 The claims are confusing and unclear by claims 1 and 116 by not requiring a step of the process to produce a pattern on a surface as required in the claim preamble. In the last line of claim 1, --- to
15 produce a pattern on a surface of the substrate --- should be inserted after "substrate". Claim 116 should be similarly amended.

 Claims 1-38 are confusing and unclear by "non-planar stamp" in claim 1 being uncertain as to meaning and scope. The specification fails to recite and define "non-planar stamp". It is uncertain as to
20 whether this term is requiring a stamp having a curved surface or a surface that contains raised portions and channels, or both. The line of demarcation between the form of a stamp that is non-planar and planar is uncertain. It would be uncertain as to when one is using a non-planar stamp as compared to a planar stamp.

25 Claims 33-36 and 116-122 that require the stamp to contain a lumen and claims 123-125 that additionally require the substrate to contain a lumen are unclear as to the location of the lumen with respect to entire structure of the stamp or substrate, and are unclear

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how the stamp lumen and substrate lumen function in relation to the substrate or stamp, respectively, to accomplish patterning in the process of patterning a surface. In view of the specification and drawings, when having a lumen, the stamp or substrate is of tubular
5 form containing a lumen, and the stamping surface is on the inside of the lumen when a tubular substrate is placed inside the lumen of the tubular stamp, or the stamping surface is on the outside of the tubular stamp when the tubular stamp is placed inside the lumen of a tubular substrate. When requiring the stamp or substrate to have
10 structure such as a lumen, the claims should recite sufficient structure to make clear where the stamp or substrate contains the lumen relative to the whole structure of the stamp or lumen. Furthermore, the claims should be clear how the lumen of the stamp and substrate are combined, and the lumen of the substrate and stamp
15 (claims 123-125) are combined to accomplish patterning a surface. Additionally, since claims 123-125 depend on claim 116 that require the stamp to have a lumen, it should be clear how the lumen of the stamp functions in combination with the lumen of the substrate when carrying out the patterning of a surface.

20 Claims 34 and 118 are confusing by requiring walls of the stamp defining a lumen to be flat. It is not seen how a lumen can have flat walls since a lumen is circular. Additionally, alternatively requiring walls of the lumen to be curved is confusing since the walls of the lumen are inherently curved due to circular form of a lumen.

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Claims 35 and 119 are unclear as to the relationship of the tube or balloon to the lumen of the stamp of claim 33. Is the stamp in the form of a tube having a lumen or is there some other relationship? It is not seen how a balloon can have a lumen when a lumen is given its
5 art recognized meaning.

In claim 38, it would be uncertain as to substrate structure that is open, partially closed or closed. Being open, partially closed or closed will be relative and subjective when there is no structure defined that is capable of being open, partially closed or closed.

10

Claim Rejections - 35 USC § 102

Claims 1-7, 9-11, 30, 31 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Maracas et al (5,669,303).

The claims are drawn to a method of patterning a surface by providing a non-planar stamp having a stamping surface, disposing a
15 substrate proximate to the stamping surface and modulating the dimensions of the stamp to place the stamping surface in contact with the substrate.

Maracas et al disclose stamping a surface with a flexible stamp by using pressure to cause the flexible stamp to change shape and
20 contact a surface to be stamped.

Changing the shape of the flexible stamp of Maracas et al modulates dimensions of the stamp, and the method of Maracas et al is the same as presently claimed. As shown by Figure 2, the stamp of Maracas et al is non-planar since it contains raised and recessed

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portions. Additionally, the stamp is non-planar when the flexible stamp bends prior to contact with the surface being stamped.

Response to Arguments

Applicants urge that the claims require a non-planar stamp.

5 However, Figure 2 of Maracas et al shows a stamp that is non-planar since it contains raised and recessed portions. The stamp of Maracas et al is additionally non-planar when the flexible stamp bends prior to contact with the surface being stamped. The claims do not specify when the stamp is non-planar. The present claims do not require the
10 specific embodiments depicted by Figures 1A-1F and 2 referred to by applicants as showing a different stamp.

Claim Rejections - 35 USC § 103

Claims 1-7, 9-13, 24-26, 30-32, 37 and 38 are rejected under 35
U.S.C. 103(a) as being unpatentable over Maracas et al ('303) in view
15 of Whitesides et al (6,180,239 B1) (newly applied), and if necessary in further view of Singhvi et al (5,776,748) (newly applied).

The invention and Maracas et al are described above.

Whitesides et al disclose patterning a surface by using a non-planar stamp that can be obtained by deforming a flexible planar stamp
20 so as to be non-planar (col 11, lines 11-13).

It would have been a matter of obvious choice depending on individual preference and convenience to deform the flexible planar stamp of Maracas et al to be non-planar as suggested by Whitesides et al since it would have been expected that a flexible non-planar stamp
25 can be used for stamping by changing the shape of the stamp as

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disclosed by Maracas et al. Deforming a flexible stamp to obtain a non-planar stamp would have resulted in the stamp dimensions being modulated prior to disposing the substrate in claim 2. Whitesides et al disclose (col 9, lines 35-50) deforming the stamp prior to stamping, and would have further suggested deforming the stamp prior to disposing the substrate. If needed, Singhvi et al would have further suggested a non-planar stamp (col 2, lines 6 and 34 and col 5, line 25).

Claim Rejections - 35 USC § 103

10 Claims 8 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-7, 9-13, 24-26 30-32, 37 and 38 above, and further in view of Kumar et al (5,512,131) (newly applied).

15 Claim 8 requires exposing the substrate to electromagnetic radiation through the stamp, and a portion of the stamp is opaque to the stamp. Claims 27-29 require removing the stamp and using a second stamp.

20 Kumar et al disclose using electromagnetic radiation when stamping to put patterns on surfaces (col 3, line 63, col 4, lines 64-65, col 14, lines 33-37, col 16, line 27, col 18, lines 23-25 and col 20, lines 34-35) to convert a species from one state to another. Further disclosed is the use of second stamp (col 3, lines 8-15) to provide a second species.

25 It would have been obvious to pass electromagnetic radiation through the stamp of Maracas et al onto the substrate being stamped to

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obtain the function of electromagnetic radiation as disclosed by Kumar et al to convert a species from one state to another. Having a portion of the stamp opaque would have been obvious to control the where the electromagnetic radiation contacts the substrate.

5 It would have been further obvious to use in Maracas et al a second stamp as taught by Kumar et al to provide a second species on the substrate. Furthermore, the disclosure of Whitesides et al (col 9, lines 1-10) of contacting the stamp with a surface in a first orientation, removing the stamp, rotating the stamp and reapplication
10 of the stamp to the surface to obtain a grid pattern would have further suggested removing the stamp and applying a second stamp when a grid pattern is desired. If needed, Singhvi et al would have further suggested using a second stamp (col 22, lines 46-59).

Claim Rejections - 35 USC § 103

15 Claims 14-23, 33-36 and 116-119 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-7, 9-13, 24-26 30-32, 37 and 38 above, and further in view of Anderson et al (6,645,432 B1) (newly applied).

20 Claims 14-23 require passing fluid through channels contained by the stamping surface. Claims 33-36 and 116-119 require the stamp to contain a lumen.

Anderson et al disclose stamping patterns on a surface using a stamp containing channels through which fluid is passed. For example, see col 5, line 34 to col 6, line 16.

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It would have been obvious to provide the stamp of Maracas et al with channels containing fluid to obtain the function of the fluid to form a pattern as disclosed by Anderson et al. Channels in the stamp of Anderson et al will inherently contain a lumen as required by

5 claims 33-36 and 116-119 since certain channels are of tubular form.

Response to Arguments

Applicants' arguments are moot in view of the newly applied references.

Claims 120-125 are free of the prior art.

10 Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful,
15 the examiner's supervisor, Mike Wityshyn can be reached at 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose
20 telephone number is 703-308-0196.



David M. Naff
Primary Examiner
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